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| 10/598,044   | 08/16/2006  | Paul A. Stucky       | 60469-122PUS1;<br>000.05297- | 9489             |
| 26/096 7590 03/16/2011<br>CARLSON, GASKEY & OLDS, P.C.<br>400 WEST MAPLE ROAD<br>SUITE 350<br>BIRMINGHAM, MI 48009 |             |                      |                              |                  |
| EXAMINER   |             |                      |                              |                  |
| CHAN, KAWING   |             |                      |                              |                  |
| ART UNIT   |             | PAPER NUMBER         |                              |                  |
| 2837   |             |                      |                              |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/598,044

## Applicant(s)

STUCKY ET AL.

## Examiner

Kawing Chan

## Art Unit

2837

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 6, 13 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1. The Amendments and Applicant Arguments submitted on 01/20/11 have been received and its contents have been carefully considered.

Claim 21 has been added.

Claims 1-21 are pending for examination.

### ***Claim Objections***

2. The objection to claim 13 has been removed in response to Applicant's amendment and arguments.

### ***Response to Arguments***

3. Applicant's arguments filed 01/20/11 have been fully considered but they are not persuasive.

In response to applicant's arguments "the teachings of the Crick reference do not provide any benefit in the context of the Clarke reference because the condition being addressed by the Crick reference will not occur in the Clarke reference", "Given that there is no need for any such location technique in the Clarke reference, the proposed modification does not provide any benefit and, therefore, the legally required reason for making the modification is missing. There is no prima facie case of obviousness", and "there is no predictable result and the combination cannot be made. There is no prima

facie case of obviousness and the rejection should be withdrawn", the examiner disagrees with the arguments.

As we have discussed in the previous Office Action and the rejections below, Clarke discloses the claimed invention except for "a selected signal comprising a plurality of pulses and having a duty ratio that is less than about 10% ". The fundamental purpose of citing prior art reference Crick is to teach the use of "a selected signal comprising a plurality of pulses and having a duty ratio that is less than about 10%". Although Crick does not disclose the same method of monitoring a condition of an elevator load bearing member as the claimed invention and prior art reference Clarke, it discloses a method of monitoring a fault condition of a cable (i.e. solving a similar problem as the claimed invention—monitoring a condition of cable) by using a plurality of pulses and having a duty ratio that is less than about 10% in Col 2 lines 30-56, Col 4 lines 36-43, Col 7 line 67 to Col 8 line 7 and Col 8 lines 19-25. The modification is mainly focusing on substituting the current signal to a plurality of current pulses having duty ratio less than 10% (applicant is mistakenly focus on modifying the entire monitoring method). In addition, Crick provides a teaching of using a plurality of pulses having duty ratio less than 10% to determine a fault of a cable so that circuit for supply current pulses could be embodied in a small, lightweight portable apparatus in Col 8 lines 19-25.

Thus, the teachings of Crick would provide a benefit in the context of prior art reference Clarke so that the circuit for supply current pulses to the cable could be

embodies in a small, lightweight portable apparatus. Therefore, size of the monitoring device can be reduced and can be made portable.

In response to applicant's arguments "Applicant respectfully submits that the Clarke and Crick references teach away from the Examiner's proposed modification" and "it is not possible to modify the teachings from the Crick reference in a manner that would apply current to only one of the two conductors", the examiner disagrees with the arguments.

As we have discussed in the previous Office Action and the rejections below, Robar discloses the same monitoring method as prior art reference Clarke in page 9 lines 3-23 (i.e. applying current to only one cable line). However, Robar discloses an alternative method of monitoring condition of cable by applying current to one of the tension members at a time in page 9 lines 24-26. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to have applied current to the entire cable members or one of the cable members to determine the condition of the cable. Thus, the combination of Clarke and Robar would have yielded only predictable result to one of ordinary skill in the art at the time of the invention was made.

In addition, as we have mentioned above, Crick is mainly cited to provide teachings of using current pulses having duty cycle less than 10% instead of regular current signal. The combination of Clarke and Crick does not change the principle of operation of the monitoring method (i.e. applying current to determine condition of

cable), and applying current (or current pulse as modified by Crick) to the entire cable members or one of the cable members to determine the condition of the cable would be within the skill in the art. Therefore, the combination of Clarke, Crick and Robar would have yielded only predictable result to one of ordinary skill in the art at the time of the invention was made.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 8, 9, 15-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clarke et al. (US 2002/0194935 A1) in view of Crick (US 4,291,204).

**In Re claim 1**, Clarke discloses a method (Abstract) of monitoring a condition (i.e. fault) of an elevator load bearing member (Figure 1: 10) that has a plurality of spaced, electrically conductive tension members (Figure 1: 10 & Paragraph [0017]), comprising the steps of applying a selected electric signal (since the invention is measuring the change of voltage based on the change of resistance of the wires, Clarke inherently discloses current, i.e. electric signal, is being supplied to the wires so as to be able to generate potential difference between the resistors) to at least one of the tension members.

Clarke fails to disclose a selected electric signal comprising a plurality of pulses and having a duty ratio that is less than about 10% to at least one of the tension members.

However, Crick discloses a method of monitoring a condition (i.e. fault) of cable comprising the step of applying a selected electric signal (i.e. current) comprising a plurality of pulses (Col 2 lines 30-56 & Col 4 lines 36-43 & Col 7 line 67 to Col 8 line 7) and having a duty ratio that is less than about 10% to the cable (Col 8 lines 19-25: duty ratio of 1/20 is less than 10%).

Thus, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have modified the teachings of Clarke (i.e. current supplied to the wires) with the teachings of Crick (i.e. current pulse with duty ratio of 1/20), since it is known in the art to utilize current pulse with duty ratio less than 10% to detect fault of a cable wire so that circuit for supply current pulses could be embodied in a small, lightweight portable apparatus (Col 8 lines 19-25).

**In Re claim 3**, with reference to Figures 1 and 2, Clarke discloses coupling at least two tension members (10) in an electrically conductive manner and applying the electric signal (current) to the coupled tension members (Abstract; Paragraphs [0015-0018, 0025, 0026]). With reference to Figure 1, six tension members (10) are coupled together in series by jumpers (12). The far left tension member is coupled to the second left tension member (adjacent) and to the rest of the tension members (non-adjacent). Based on the principle of broadest reasonable interpretation, "coupling at least two non-adjacent tension members" does not exclude the coupling of adjacent

tension members. In addition, Clarke intends to connect all the tension members (10) in series by using jumpers (12), and rearranging the jumpers to couple tension members with non-adjacent members only and connect all the tension members in a series connection would be within the skill in the art.

**In Re claim 8**, Clarke discloses a device for monitoring a condition (i.e. fault) of an elevator load bearing member (Figure 1: 10) comprising a controller that selectively applies an electric signal (since the invention is measuring the change of voltage based on the change of resistance of the wires, Clarke inherently discloses current, i.e. electric signal, is being supplied to the wires so as to be able to generate potential difference between the resistors, and the controller is inherently disclosed to supply current to the wires, e.g. Figure 1: V) to at least one tension member (Figure 1: 10).

Clarke fails to disclose the signal comprising a plurality of pulses and has a duty ratio that is less than about 10% to at least one of the tension members.

However, Crick discloses a method of monitoring a condition (i.e. fault) of cable comprising the step of applying a selected electric signal (i.e. current) comprising a plurality of pulses (Col 2 lines 30-56 & Col 4 lines 36-43 & Col 7 line 67 to Col 8 line 7) and has a duty ratio that is less than about 10% to the cable (Col 8 lines 19-25: duty ratio of 1/20 is less than 10%).

Thus, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have modified the teachings of Clarke (i.e. current supplied to the wires) with the teachings of Crick (i.e. current pulse with duty ratio of 1/20), since it is known in the art to utilize current pulse with duty ratio less than 10% to



detect fault of a cable wire so that circuit for supply current pulses could be embodied in a small, lightweight portable apparatus (Col 8 lines 19-25).

**In Re claim 9**, Clarke discloses a connector (201,201, 12) that establishes an electrically conductive connection between the controller (e.g. V) and the tension member (10).

**In Re claim 15**, Clarke discloses the controller (e.g. V) applies the signal to an entire plurality of tension members simultaneously (Figure 1).

**In Re claim 16**, Clarke discloses an elevator load bearing member assembly (Figure 1: 10) comprising:

- a plurality of electrically conductive tension members (Figure 1: 10 & Paragraph [0017]);
- a nonconductive jacket (Figure 1 & Paragraph [0019]: 11) generally surrounding the tension members (10); and
- a controller that selectively applies an electric signal (since the invention is measuring the change of voltage based on the change of resistance of the wires, Clarke inherently discloses current, i.e. electric signal, is being supplied to the wires so as to be able to generate potential difference between the resistors, and the controller is inherently disclosed to supply current to the wires, e.g. Figure 1: V) to at least one tension member (Figure 1: 10).

Clarke fails to disclose a selected electric signal comprising a plurality of pulses and having a duty ratio that is less than about 10% to at least one of the tension members.

However, Crick discloses a method of monitoring a condition (i.e. fault) of cable comprising the step of applying a selected electric signal (i.e. current) comprising a plurality of pulses (Col 2 lines 30-56 & Col 4 lines 36-43 & Col 7 line 67 to Col 8 line 7) and having a duty ratio that is less than about 10% to the cable (Col 8 lines 19-25: duty ratio of 1/20 is less than 10%).

Thus, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have modified the teachings of Clarke (i.e. current supplied to the wires) with the teachings of Crick (i.e. current pulse with duty ratio of 1/20), since it is known in the art to utilize current pulse with duty ratio less than 10% to detect fault of a cable wire so that circuit for supply current pulses could be embodied in a small, lightweight portable apparatus (Col 8 lines 19-25).

**In Re claim 17**, Clarke discloses a connector (201,201, 12) that establishes an electrically conductive connection between the controller (e.g. V) and the tension member (10).

**In Re claim 20**, Crick discloses the duty ratio is 1/20 (i.e. 5%), more or less (Col 8 lines 19-21). Thus, Crick is capable of generating current pulses with duty ratio less than 1/20 (e.g. 1%), and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

6. Claims 2, 7, 10, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clarke et al. (US 2002/0194935 A1) in view of Crick (US 4,291,204) as applied to claims 1, 8 and 16 above, and further in view of Robar (WO 00/58706).

**In Re claim 2**, Clarke and Crick have been discussed above, but they fail to disclose applying the signal to one of the tension members at a time.

However, Robar discloses applying the signal (i.e. current) to one of the tension members (i.e. individual cords within a rope) at a time (Page 9 lines 24-26: Robar suggests a method of comparing resistivity of individual cords within a rope, thus, Robar inherently discloses a method of measuring resistance of one individual cord at a time so as to be able to compare resistivity of the individual cords). In addition, the limitation "applying the signal to one of the tension members at a time" does not limit the limitation to be "only" one tension member at a time. Applying electric signal to all the tension members includes applying the electric signal to one of the tension members.

Thus, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have modified the teachings of Clarke and Crick with the teachings of Robar, since it is known in the art to determine the condition of a rope by comparing resistivity of individual cords (i.e. applying signal to individual cords one at a time) so that the effect of temperature and moisture to the resistivity of individual cords would be minimized.

**In Re claim 7**, Robar discloses the step of determining a resistance of the tension members based upon the applied signal (Page 9 lines 3-23).

**In Re claims 10 and 18**, with reference to Figures 1 and 2, Clarke discloses coupling at least two tension members (10) in an electrically conductive manner and applying the electric signal (current) to the coupled tension members (Abstract; Paragraphs [0015-0018, 0025, 0026]). With reference to Figure 1, six tension members (10) are coupled together in series by jumpers (12). The far left tension member is coupled to the second left tension member (adjacent) and to the rest of the tension members (non-adjacent). Based on the principle of broadest reasonable interpretation, "coupling at least two non-adjacent tension members" does not exclude the coupling of adjacent tension members. In addition, Clarke intends to connect all the tension members (10) in series by using jumpers (12), and rearranging the jumpers to couple tension members with non-adjacent members only and connect all the tension members in a series connection would be within the skill in the art.

**In Re claim 14**, Robar discloses the controller (612) determines a resistance of the tension members and a condition of the load bearing member based upon the determined resistance (Page 8 line 20 to Page 9 line 31).

7. Claims 4, 5, 11, 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clarke et al. (US 2002/0194935 A1) in view of Crick (US 4,291,204) as applied to claims 1, 8 and 16 above, and further in view of Brucken et al. (US 5,338,417).

**In Re claims 4 and 11**, Clarke and Crick have been discussed above, but they fail to disclose the tension member carrying the signal as a cathode relative to a hoistway where the elevator load bearing member is used.

However, Brucken discloses the tension member (i.e. steel pipe encases a high tension power line) carrying the signal as a cathode (i.e. negative voltage) relative to a hoistway (i.e. ground) (Col 2 lines 24-33).

Thus, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have modified the teachings of Clarke and Crick with the teachings of Brucken, since it is known in the art to utilize the technique of cathodic protection so as to be able to control the corrosion of a metal surface by making that surface as cathode.

**In Re claim 5**, Brucken discloses controlling a potential of the electric signal (i.e. negative voltage) such that the potential is negative compared to a ground potential of the hoistway (i.e. the ground) (Col 2 lines 24-33).

**In Re claims 12 and 19**, Brucken discloses the electric signal has a polarity that is negative (i.e. negative voltage) compared to a ground potential of a hoistway (i.e. the ground) (Col 2 lines 24-33).

#### ***Allowable Subject Matter***

8. **Claims 6, 13 and 21** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The cited prior art do not teach or suggest a device or method for monitoring a condition of an elevator load bearing member comprising the electric signal is applied only to non-adjacent tension members at a time. The combinations of the claimed limitations in the independent claims 1, 8 and 16 are not anticipated or made obvious by the prior art of record in the examiner's opinion.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kawing Chan whose telephone number is (571)270-3909. The examiner can normally be reached on Mon-Fri 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on 571-272-2227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. C./  
Examiner, Art Unit 2837

/Walter Benson/  
Supervisory Patent Examiner, Art Unit 2837